3.3.4 Assessing Vulnerability: Estimating Potential Losses

Existing buildings located within a hazard area are listed by the census tract they are located within and their occupancy classification. (See Appendix 1 for Louisville Metro's Census Tract map.) Facilities located within a hazard area are only listed by address.

Facilities identified in this section include: highway bridges and tunnels, RR stations, bus stations, ports, airports, potable water facilities, waste water facilities, natural gas facilities, electric power facilities, communication facilities, hospitals, emergency operation centers, fire stations, police stations, and schools.

Estimating Potential Losses

The estimate of losses considers how community assets will be impacted by hazard events.

For each hazard, the appropriate risk assessment methodology is used to estimate losses, including:

The loss estimation dollar values for the above listed facilities are building values derived from both HAZUS-MH and local sources.

Methodology

The loss estimates show the potential hazard impact on local facilities and buildings, thus resulting in vulnerability and potential loss for the community. Uncertainties are inherent in any vulnerability and loss potential methodologies, arising in part from incomplete scientific knowledge concerning natural hazards and their effects on the built environment. Uncertainties also result from approximations and simplifications that are necessary for a comprehensive analysis (such as incomplete inventories, demographics, or economic parameters).

Following are the facility and building total values for Louisville Metro.

- The total value of all facilities is approximately $4.7 billion.
- The total value of all buildings is approximately $54 billion.

Drought, hailstorm, severe storm, severe winter storm, tornado, and wildfire: Because of the unpredictable nature of drought, hailstorm, severe storm, severe winter storm, tornado, and wildfire, all buildings and facilities have an equal vulnerability to these hazards. Also, for these hazards, the lack of proper data prohibits accurate loss estimation modeling on buildings and critical facilities. Thus, for this risk assessment, all buildings and critical facilities are estimated to have an equal potential for loss.

Dams: Although the dam inventory can be located, currently, there is no loss estimation modeling or best available data that shows areas potentially affected from a dam failure, such as a dam inundation model. Thus, potential losses

cannot be calculated for dam failure. Also, due to the fixed locations of the dams, not all identified critical facilities are at a potential for loss from a dam or levee failure.

Earthquake: Louisville Metro HAZUS-MH Pilot was used for the earthquake vulnerability assessment and loss estimations (see Appendix 12 for results of the HAZUS-MH risk assessment).

Flood, Karst/Sinkhole, Landslide: Using existing building and facility location points**,** those structures vulnerable to Flood, Karst/Sinkhole, and Landslide were identified and their potential loss estimated.

Flood, Karst/Sinkhole, and Landslide have known High Hazard potential boundary areas. Existing building and facility points were put into a GIS mapping session with the hazard boundary areas overlaid. By doing this, the existing building and facilities located in these hazard boundary areas were pulled out of the database and labeled “vulnerable”. It is assumed that these structures have the potential to be substantially damaged. This method provided location and loss estimates for existing buildings and facilities found in the tables in this section.

See Appendix 14 for loss estimate tables and a listing of existing buildings which are vulnerable to Flood, Karst/Sinkhole, and Landslide. Appendix 14 also categorizes these buildings by occupancy class.

See Appendix 14 for a listing of the facilities vulnerable to Flood, Karst/Sinkhole, and Landslide including potential loss represented by the value of the facility.